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Patent Claims

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1. Process to produce models in layers, whereby a first material and then selectively a second material is applied in layers on a building platform and these two application stages are repeated until a desired model is achieved, the two materials form a solid if a suitable mixture ratio is used and the first material is a material mixture, characterised in that the material mixture is at least partially prepared prior to each application stage.

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2. Process according to Claim 1, characterised in that the material mix is prepared continually.

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3. Process according to Claim 1, characterised in that the material mix is prepared in batches.

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4. Process according to one of the preceding claims, characterised in that the material mix contains a particulate material and a first reactive material component.

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5. Process according to one of the preceding claims, characterised in that the second material contains a second reactive component, in particular an activator.

6. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
a further application of the first and second  
materials takes place before the setting time of the two  
5 materials has elapsed.
7. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
while preparing the material mix a  
10 residual porosity remains.
8. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
the second material is applied by using  
15 droplet production technology.
9. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
the second material is applied by using  
20 dispensing technology.
10. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
the second material contains a carrying agent.  
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11. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
the curing of a bond consisting of the materials  
takes place on the basis of a chemical reaction.  
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12. Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
the curing of the bond consisting of the materials  
takes place on the basis of a physical process.

- 13.Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
5 that the particulate material consists of a moulding sand  
chosen from the group including quartz sands,  
zircon sands, olivine sands, and/or chamotte sands.
- 14.Process according to one of the preceding claims,  
10 c h a r a c t e r i s e d i n t h a t  
the particulate material consists of a  
polystyrene powder and/or a polyamide powder and/or  
another polymeric powder.
- 15 15.Process according to one of the preceding claims,  
c h a r a c t e r i s e d i n t h a t  
the first reactive material consists of a furan resin  
and/or a polyurethane resin.
- 20 16.Application of the process in accordance with one of the  
claims 1 to 13 for the production of components as moulds  
for non-ferrous castings.
- 25 17.Application of the process in accordance with one of the  
claims 1 to 14 for the production of investment patterns  
for non-ferrous castings.